NOTES.

COLONEL J. W. OTTLEY, C.I.E., has been appointed president of the Royal Indian Engineering College, Coopers Hill, in the place of Colonel Pennycuick, C.S.I., resigned.

THE Committee of the British Association Table at the Naples Zoological Station announce that the Table is fully occupied until the middle of April next, but that applications for its occupancy from then until the end of August 1900, should be sent at once to the Hon. Secretary of the Committee, Prof. Howes, F.R.S., at the Royal College of Science, South Kensington. Mr. Kyle will occupy the table from now until Christmas, when he will be succeeded by Mr. M. D. Hill, who will continue investigations on the reproduction processes of Crustacea, and in March Prof. Herdman will go out and devote a month to the study of the Tunicata of the Bay.

THE Harveian Oration was delivered at the Royal College of Physicians by Dr. J. Vivian Poore on Wednesday last.

AN address will be given to the North-west London Chemical Society, on October 24, by Dr. Lauder Brunton, F.R.S., who will take as his subject "Biliousness and Gall Stones." On November 2, Sir J. Burdon-Sanderson will deliver an introductory address to the Middlesex Hospital Medical Society. To this all past and present students of the hospital are invited.

A TELEGRAM from Amsterdam, dated October 12, states that a violent earthquake has occurred in the south side of the Island of Ceram, in the Dutch East Indies, causing the death of some thousands of persons and the complete destruction of the town of Amhei. Details, however, are wanting.

AT a meeting of the Finance Committee of the Lincolnshire County Committee, held on the 13th inst., it was resolved that the County Committee be recommended to give their consent to the erection, within the grounds of Lincoln Castle, of an observatory for the preservation and use of certain astronomical instruments offered to the county by the executors of the late Canon Cross, of Appleby. The recommendation was made that the committee's consent should be given subject to the condition that the buildings shall not be commenced until sufficient funds have been raised for their erection and the future maintenance of the instruments. It is proposed to raise the funds by public subscription. We trust there will be a hearty response to the appeal that is to be issued.

AT a meeting of the Council of the London Mathematical Society it was resolved that the president (Lord Kelvin), the three vice-presidents, the treasurer, and the two secretaries should be nominated for the same offices at the annual meeting on November 9 next. Of the other members, Messrs. W. H. H. Hudson, D. B. Mair, and W. D. Niven, C.B., retire from office, and Messrs. W. Burnside, H. M. Macdonald and E. T. Whittaker were nominated to fill the vacancies. The Council also empowered the secretaries to publish an "Index" to the first thirty volumes of the *Proceedings*, on the lines of the similar index to the first fifty volumes of the *Mathematische Annalen*. Mr. Tucker was further authorised to draw up a complete list of members from the foundation of the Society in 1865.

THE Council of the Royal Photographic Society have decided to institute a series of monthly meetings, extending from November to April, to be especially devoted to illustrated lantern lectures. The meetings will be held on the first Tuesday in the month, and the first will take place on November 7.

THE second Traill-Taylor Memorial Lecture will be delivered on November 14 at the rooms of the Royal Photographic Society by Major-General Waterhouse, who will take as his subject "The Teachings of the Daguerreotype."

THE third International Congress of Photography is to be held in Paris from July 23 to July 28, 1900. Its purpose will be to re-examine decisions arrived at by the two last Congresses on problems before the Society, and to see if such are capable of further improvement or perfection. To inquire into the various new photographic questions arising since the last meeting. Practical demonstrations of working methods, lectures on special subjects, and visits to scientific and industrial institutions also form part of the programme. Those intending to be present are requested to address the General Secretary, M. S. Pector, 9 Rue Lincoln, Paris.

THE magnetic survey of Maryland has now been practically completed, the distribution of stations being such that on the average there is one station for every hundred square miles. The expenses of the work, with the exception of this year, have been entirely borne by the Maryland Geological Survey.

A SCIENTIFIC and commercial mission, under the direction of M. Ernest Milliau, Director of the Laboratory of Technical Experiments in connection with the Ministry of Agriculture, Paris, has been sent to Russia and Roumania with the object of taking measures for facilitating and extending business relations with those countries, especially with regard to the exportation of olive oils.

A BACTERIOLOGICAL institute has recently been established at Vladivostok, and a similar institute is shortly to be opened at Merv in Central Asia.

OWING to the prevalence of enteric fever in Natal, every man ordered for military service in that Colony has, says the *Lancet*, been given the option of being inoculated with anti-typhoid serum, and 70 per cent. of the troops have accepted the offer.

THE late Prof. O. C. Marsh's executors are about to sell his valuable collection of orchids, objects of art, antiquities, &c., for the benefit of the Yale University.

ACCORDING to the *Scientific American*, Japan is to send out an Arctic Expedition. The Japanese Government wishes, says our contemporary, to develop in the Japanese the spirit of adventure and discovery which has rendered the English nation so powerful.

THE New York Zoological Park, situated in Bronx Park, is to be opened to the public this month. The *Scientific American* states that the specimens which will be ready for public inspection will form but a small part of the exhibit, and that these will be very interesting.

THE return, after an absence of two years, of Mr. A. J. Stone, of New York, is announced. Mr. Stone has been travelling in the Arctic regions during the time mentioned, studying the geographical distribution of animals. It is reported that during five months of travel last winter he covered 3000 miles of coast and mountain entirely above the Arctic circle.

Science announces the return from Manila of the Johns Hopkins University Commission, which, under the direction of Dr. S. Flexner, has spent the past summer in studying tropical diseases.

THE death is announced, from Vienna, of Dr. Oscar Baumann, who had acquired some reputation as an African explorer. In 1885 Dr. Baumann joined the Austrian Congo expedition, subsequently visiting the island of Fernando Po, the Cameroons, and parts of East Africa. Other expeditions followed, in one of which he fell into the hands of hostile Arabs, and was only released on the payment of a ransom. He was entrusted with

the command of an expedition fitted out in 1889 by a German anti-slavery association. In the following year he explored the Usambara, and made preliminary observations for the purpose of tracing a projected railway in that region. In addition to a map of the Congo and numerous contributions to the reports of the Geographical Society of Vienna, Dr. Baumann published three books dealing with his travels and observations in Fernando Po and Usambara and with the rising in German East Africa.

WE regret to notice the death of Dr. J. W. Hicks, the Bishop of Bloemfontein, which has just taken place. The late Bishop was an earnest student of science, and was at one time a demonstrator in chemistry in the University of Cambridge, and published a text-book on inorganic chemistry. He was also a fully qualified medical man, having been made an M.D. in 1864, and an M.R.C.P. in 1865.

THE death has occurred, at Adirondacks, New York, of Mr. Hamilton Y. Castner, well known for his work in connection with the manufacture of aluminium and the establishment on a manufacturing scale of a process for the electrolytic production of alkali and bleaching powder from common salt.

THE *National Geographic Magazine* states that various sites within a radius of twenty-five miles of Washington are being examined by parties under Dr. Bauer's direction for the determination of the best location for the Coast and Geodetic Survey Observatory. The examinations thus far made have disclosed some interesting regional disturbances, especially in the vicinity of Gaithersburg. In order to determine what influence such regional disturbances have upon the variations of the earth's magnetism, such as, for example, the diurnal variation or the secular variation, it is proposed to mount a sensitive Eschenhagen dedinetograph at Gaithersburg, with the aid of which the variations of the most sensitive of the magnetic elements—the declination—will be continuously and automatically recorded.

THE British Fire Prevention Committee made a series of fire tests yesterday at their testing station as we went to press. The tests on this occasion were with a concrete floor, an iron safe, and two doors of wood. We are glad to see that the committee are continuing their valuable work in so energetic a manner. Valuable results may be expected to accrue from the experiments made by the committee from time to time.

A MONUMENT erected to the memory of Johannes Müller was unveiled at Coblentz on October 7. Prof. Virchow, who was the principal speaker at the cer emony, said in the course of his remarks that Müller was a biologist, a naturalist whose aim was the study of life itself in its universality. He was the first to use the microscope in researches on living beings, the first to disclose the fauna of the seas. His example inspired the deep-sea researches of to-day. Müller's method was observation ; he put things into the right positions for exhibiting their action, and then registered his observations. At the time of Müller's youth it was believed that from inanimate nature, from atoms, from matter, or substance, new combinations might form themselves, which finally might lead to the generation of living organic forms, that, in short, plants and men might be evolved from dust. In modern times this had been named spontaneous generation. Johannes Müller warned against such hypothetic conclusions. He said : " We cannot generate living substance, and as long as we cannot do so, as long as we have no proof, we must put these theories aside " ; and (said Prof. Virchow) that is the standpoint of resignation, of submission, that is the true position for a naturalist, such as Müller was. On the occasion of the unveiling of the monument, Müller's daughter presented to the State Library fourteen volumes of drawings, containing upwards of nine hundred zoological sketches made by her father in the years 1850–1854 in various countries.

THE Indian correspondent of the *Lancet* states that new regulations have been made with reference to persons sending or taking from place to place in India cultures or other articles known or believed to contain the living germs of plague. No person who is not a commissioned medical officer, a military assistant surgeon, or a medical practitioner in possession of a qualification not lower than that of L.M.S. of the University of Calcutta, Madras or Bombay shall without the special permission of the Governor-General in Council or a local government take in his private possession from one place to another any cultures or other articles which he knows or believes to contain the living germ of plague. No such culture shall be sent from one place to another unless it is securely packed in a hermetically closed tin of adequate strength, placed in a strong outer box of wood or tin, with a layer of at least three-quarters of an inch of raw cotton wool between the inner and outer case, the outer case being enclosed in a stout cloth, securely fastened and sealed, and labelled with such distinguishing inscription as will suffice to make immediately manifest the nature of the contents.

ACCORDING to a recently issued consular report, a new process for the production of ammonia has recently been discovered in Germany. The process is said to be at present an expensive one, but this difficulty will, it is thought, be overcome.

AN American paper, the *Pharmaceutical Era*, has published an article by Mr. H. M. Whelpley, of St. Louis, in which particulars are given as to the use of the metric system in American physicians' prescriptions. It appears from the article that out of 1,008,500 prescriptions examined, only 6 per cent. were in the metric system. The information was obtained from apothecaries in forty-two States and territories.

A SHORT article in the current number of the *National Geographic Magazine* sums up in brief the main results of Lieut. Peary's explorations in 1898–99, from which we extract the following information :—In the south Peary discovered that the so-called Hayes Sound, north-west of Cape Sabine, is only an inlet or bay. It was supposed by many that it extended through to the Arctic Ocean west of Ellesmere Land, and separated that country from Grinnell Land on the north. It is now proved that these regions are one and the same land. He also travelled west across the northern part of Ellesmere Land, which has never before been penetrated for any distance, and visited its west coast, joining his survey of the shoreline with the short bit of the coast further north, which Lockwood, of the Greely Expedition, discovered in May 1883. This is the first time that any part of this coast has been seen south of the inlet visited by Lockwood. In his various sledge journeys up the channel from the *Windward's* position, Peary skirted the east coasts of Grinnell Land and Grant Land for a distance of about 250 miles, rectifying the mapping of this shore-line in some respects, and particularly the surveys of a number of indentations. The most northern point reached by Peary was Cape Beechey, about 82° N. latitude. No effort to push northward has been made this summer, and Peary's winter camp has been established on the Greenland side of Smith Sound, several miles further south than his quarters of a year ago.

PROF. KOCH has published his first report on his study of malaria in Italy in the *Deutsche Medicinische Wochenschrift*. In all the cases of malaria examined by Prof. Koch and his assistants the parasite of malaria was found in the blood. Apart from the blood of human beings, the parasites occurred only in some species of mosquitoes which were met with only in the summer. The mosquitoes convey the malaria germs

from one human being to another; the infection is especially maintained and propagated by the relapsing cases which continue all the year round and form the link between one fever season and the next, so that the mosquitoes in the beginning of summer always find germs. If no relapse occurred in any of the cases of malaria in any given district the mosquitoes would find no germs in the beginning of summer, and malaria would become extinct there. Prof. Koch succeeded in recognising certain species of mosquitoes in the dwellings of the population; this was the more important, as the mosquitoes of this district did not usually bite during the day but only during the night. The inhabitants therefore became infected at night within their dwellings. In seven cases parasites of malaria were discovered in insects, especially in *Anopheles maculipennis*. In many dwellings, however, where patients had contracted malaria, anopheles was not present, but another insect, *Culex pipiens*, was hardly ever absent. Prof. Koch ascertained that the so-called æstivo-autumnal fevers were identical with tropical malaria.

Industries and Iron gives particulars of an electric fog-alarm which, it is reported, has been invented by a Canadian electrical engineer. The description is as follows:—A naphtha engine supplies the motive power to a dynamo that furnishes the electric current, by means of which three pairs of electromagnets operate half a dozen clappers that strike against a large gong with a frequency of about 36,000 strokes a minute, producing an almost continuous sound. Its effectiveness is enhanced by a mechanism somewhat on the principle of a megaphone, by means of which the sound is not only intensified but thrown in the required direction. A model of this fog-alarm was not long ago tested at Ottawa, and although it was comparatively a small affair, its sound was easily heard a distance of two miles. The sound of the completed machine will be (it is thought) distinguishable at a distance of fifteen miles.

As an example of the interest that is taken in anthropology on the continent, we call attention to the publication of the free courses of lectures delivered by Prof. E. Morselli at Turin and Genoa. The title of the publication is "Antropologia Generale: Lezioni su l'Uomo secondo la Teoria dell' Evoluzione." When will it be possible for the English public to hear systematic lectures on anthropology of any kind, free or otherwise? Prof. Morselli puts his subject clearly, judging from the portions only of the two lectures that we have received.

ANTHROPOLOGISTS who more particularly study European ethnology should be very grateful to Dr. William Z. Ripley, of Boston, for the "Selected Bibliography of the Anthropology and Ethnology of Europe" that has just been issued by the Trustees of the Public Library of Boston, Mass. The list contains nearly two thousand titles in nearly all the languages of Europe; the Slavic writers are very well represented. The authors are arranged in alphabetical order, and their several publications are cited chronologically; this is followed by a subject-index. The labour of compiling this bibliography must have been immense, but Dr. Ripley will have the satisfaction of feeling that he has supplied his colleagues with a valuable and indispensable tool.

AMONG the most useful instruments employed in Italy for the registration of earthquake movements are the microseismographs, designed by Prof. Vicentini and modified by Dr. Pacher, which have been erected in the Physical Institute of the University of Padua. Hitherto the records have been published at irregular intervals in the *Atti* of the R. Istituto Veneto di Scienze, &c., but it is now arranged that they shall appear systematically and ultimately form an appendix to the yearly volume. The first number, recently issued, contains the register from January 1 to March 12 of the present year, and also notes with regard to the arrangement of the different instruments.

THE tin trade of prehistoric Europe is a subject of considerable interest and importance. Very recently Salomon Reinach (*l'Anthropologie*, x., 1899, p. 397) has again attacked the problem and has arrived at the following conclusions. A thousand years B.C. there was an almost exclusively overland trade between the British Islands and Thrace and Macedonia. The relations between Britain, Northern Europe and Western Asia have been proved by archæology, by the diffusion of tin, amber, spiral ornaments and the types of bronze arms and utensils. Thus it is not surprising that Homeric Greece about 800 B.C. knew not only the Celtic name of the Cassiterides, but the phenomenon of the short nights of the north of Britain. The overland tin was brought to the Ægean, if not by Greeks, then by Barbarians. These Barbarians, accurately knowing the country from which the tin came, sought a marine route in order to retain this precious trade in their own hands. This was rendered more feasible by the invention of the anchor by the legendary Midas of Phrygia, for then ships could ride with safety in the open. Reinach considers that it was he who first brought tin and lead to Greece by sea by the north-west route, and it was only later that the Phœnicians got the tin trade into their hands. The English Leake, Hamilton and Ramsay have rediscovered Phrygia, but twenty-seven centuries ago the Phrygians discovered England.

THE *Bulletin de la Société Astronomique de France* for October contains several interesting meteorological articles. M. E. Touchet contributes an illustrated article on the storms of August and September 1899, showing some excellent lightning pictures. He gives special attention to the type of lightning which is apparently unaccompanied by thunder. M. A. Souleyre, writing on the "distribution of rain on the earth," summarises the interaction of the various air-currents and the barometric variations connected with rainfall. MM. V. Farquon and F. A. Mavrogordato give short accounts of their observations of the "green ray" on the Alps and at Smyrna respectively.

THE October number of the *Journal of Conchology* contains an interesting paper by Messrs. Melvill and Standen on the cowries of the *caput-serpentis* group. In that group are included not only species with a dark peripheral area and a spotted centre, like the typical *Cypraea caput-serpentis*, *C. mauritiana*, and *C. arabica*, but likewise the ring cowry (*C. annulus*) and the familiar money cowry (*C. moneta*). The two latter, as many of our readers are aware, are white; the yellow ring from which the second of the two derives its name marking the line of division between the spotted central and the dark peripheral area of the serpent-head cowry (*C. caput-serpentis*). If proof were necessary to demonstrate that this is the true explanation of the coloration of the two species, it is afforded by the discovery of a white example of a variety of *caput-serpentis*, in which the dorsal spots are still faintly visible. It has been recently stated by another writer that "from the ring cowry may easily be derived the money cowry, in which the ring has all but disappeared, while the marginal area has developed a series of rugosities, apparently connected with the filaments on the margins of the mantle lobes." And Messrs. Melville and Standen now come to the conclusion that these two cowries are really nothing more than races of a single species, for which the name *C. moneta* should be retained.

THE last number of the *Transactions* of the Norfolk and Norwich Naturalists' Society bears ample testimony to the maintenance of the taste for natural history and botany which has always been so characteristic of that favoured county. As is only proper, the great bulk of the papers refer to local

subjects, while a few, like Mr. Warde Fowler's notes on the birds of the Somme Valley, supplement the history of native species in other lands, the remainder having no particular connection with the county. Especial interest attaches to Mr. S. F. Harmer's note on the occurrence of the well-shrimp (*Niphargus*) near Norwich; and likewise to Mr. J. H. Gurney's account of the distribution of the Bearded Tit. Various specialists bring the lists of the Norfolk fauna and flora up to date. And those who study economic zoology will be interested in the notes of Mr. G. H. Harris on the herring fishery of 1898. So far as the Yarmouth boats were concerned, this appears to have been a practical failure. It was not that the catch was always bad; but, whatever the catch, prices were forced down by the poor quality of the fish. And this is mainly attributed to the mild season, herrings being never of high quality in warm weather.

AMONG recent papers in the *Journal of Applied Microscopy*, Mr. Charles J. Chamberlain's series of articles on "Methods in Plant Histology" will be useful to teachers and students of practical botany. The last articles contain illustrated accounts of the principal families of algæ with methods of preparing for observation. One of these methods is, however, capable of improvement. To place specimens in a 10 per cent. solution of glycerine, and allow the solution to evaporate till it is of the consistency of pure glycerine would be unnecessarily tedious. It is simpler and equally efficacious to place the specimens in water in a small receptacle of parchment paper, and float the latter on glycerine, the change of density taking place through the paper by osmosis instead of by evaporation.

A VERY clear photographic group of official members of the recent Dover meeting of the British Association, together with members of the French Association and the Belgian Geological Society, has been sent to us by the photographers, Messrs. Lambert Weston and Sons, of Dover, from whom copies may be obtained. In the majority of instances the individuals portrayed can easily be identified.

THE additions to the Zoological Society's Gardens during the past week include a Rhesus Monkey (*Macacus rhesus*, ♀) from India, presented by Mrs. J. Adams; a Black-faced Spider Monkey (*Ateles ater*) from Eastern Peru, presented by Mr. Claude P. Landi; a Common Chameleon (*Chamaeleon vulgaris*) from North Africa, presented by Mr. A. H. Ryan; a Red-cheeked Souslik (*Spermophilus erythrogenys*), four Eversmann's Sousliks (*Spermophilus altaicus*), four Altai Sousliks (*Spermophilus mugosaricus*) from Western Siberia, a Common Seal (*Phoca vitulina*), British, a Common Cormorant (*Phalacrocorax carbo*, var.), European, an Emu (*Dromaeus novae-hollandiae*), three Long-necked Chelodines (*Chelodina longicollis*) from Australia, an Uvæan Parrakeet (*Nymphicus uvaeensis*) from the Island of Uvea, a Rosy Parrakeet (*Palaeornis rosa*) from Burmah, a Four-lined Tree-frog (*Polypedates quadrilineatus*) from the East Indies, a Westerman's Eclectus (*Eclectus westermani*) from Moluccas, deposited; six Glossy Ibises (*Plegadis falcinellus*), bred in the Gardens.

OUR ASTRONOMICAL COLUMN.

COMET GIACOBINI (1899 *e*).

Ephemeris for 12h. Berlin Mean Time.

1899.	R.A. h. m. s.	Decl. ° ′	Br.
Oct. 19	16 57 8	+0 46·4	
21	17 0 3	1 19·0	0·71
23	2 59	1 51·2	
25	5 55	2 23·0	0·66
27	8 52	2 54·5	
29	17 11 49	+3 25·6	0·62

A circular from the Centralstelle at Kiel informs us that owing to an error in one of the published observations, there is some doubt as to the correct elements of this comet. In consequence of this the above ephemeris may not be quite accurate, but, as according to the latest observation recorded, it is less than one minute in R.A. and two minutes in Decl. in error, it will be useful for searching purposes. The comet is travelling to the north-east through Ophiuchus, a little south of the second mag. star α Ophiuchi.

HOLMES' COMET (1899 *d*).

Ephemeris for 12h. Greenwich Mean Time.

1899.	R.A. h. m. s.	Decl. ° ′ ″
Oct. 19	2 53 1	+48 49 51
20	51 57	48 54 5
21	50 51	48 57 56
22	49 44	49 1 25
23	48 36	49 4 30
24	47 27	49 7 13
25	46 17	49 9 33
26	2 45 7	+49 11 29

This comet is now in the middle of Perseus, being nearly on the line joining β and γ Persei, about two thirds of their distance from the former.

OPPOSITION OF JUPITER, 1899.—*Astronomische Nachrichten* (Bd. 150, No. 3596) contains the results of several observers' work on the planet during the last opposition of 1899 April 25. M. J. Comas Solá, of the Catala Observatory, gives a planispheric map of the markings observed by him with a Mailhat objective of 22 cm. aperture, from February 18 to July 8. Tables are given showing the various rotation periods obtained from observations of spots in different zones, a summary of which is as follows:—

Mean velocity of spots on south border of equatorial zone ... = 9h. 50m. 23·35s. (from 22 spots)

Mean velocity of spots on north border of equatorial zone ... = 9h. 50m. 15·25s. (from 9 spots)

∴ mean equatorial velocity ... = 9h. 50m. 20·76s.

This, compared with Denning's mean velocity for 1898, 9h. 50m. 23·6s., would indicate an acceleration since the spring of 1897.

Measures of the "red spot" gave a period of 9h. 55m. 41·85s.

Herr Ph. Fauth also gives a planispheric drawing showing the details observed from May 30 to June 13, with a Pauly objective of 17·8 cm. aperture.

Mr. A. Stanley Williams, of Brighton, gives his observations of the "red spot" made during the period March 13 to June 16 with a 6½-inch reflector. The period found is given as 9h. 55m. 42·65s. from 229 rotations (March 13 to June 16). He finds the spot to be a little shorter now than it was in 1887 (31°·7 instead of 34°·7).

LAW CONNECTING MOTIONS IN PLANETARY SYSTEM.—M. Ch. V. Zenger, of Prague, has recently put forward the results of work he has been engaged on for some years past, and a part dealing with the relations existing between the "time of a planet's revolution" and its position in the solar system appears in the *Bulletin de la Soc. Ast. de France*, October 1899, pp. 431–434. He finds that the orbital movements of the planets and also of some periodical comets have a simple law connecting them with the time of the sun's rotation. If "*r*" is the time of *rotation* of the central controlling body, then "R," the time of *orbital revolution* of the planet, is given by the relation $R = n\frac{r}{2}$; where "*n*" is a whole integer, different for each body.

Taking Faye's value for the solar rotation = 25·2 days, $\frac{r}{2}$ = 12·6 days, and the author gives the following data:—

	Mercury	Venus	Earth	Eros	Mars	Jupiter	Saturn	Uranus	Neptune
N=	7	18	29	51	54	344	854	2436	4776
R=	88·2d.	226·8d.	365·4	642·6	680·4	4344·4	10765·4	30693·6	60177·6.

Between the earth and Eros, the author mentions the possible existence of a hitherto unknown planet for which *n* = 40, and the period of revolution of which would therefore be about 500·4 days.

Several tables are also given showing the conformation of the satellites of the various planets to a similar relation, and the author considers the whole as helping to confirm his electrical theory of the solar system.